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Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

In the Matter of)

Implementation of Section 17 of the)
Cable Television Consumer Protection)
and Competition Act of 1992)

ET Docket No. 93-7

Compatibility Between Cable Systems)
and Consumer Electronics Equipment)

To: The Commission

REPLY COMMENTS OF CABLEVISION SYSTEMS CORPORATION

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TABLE OF CONTENTS

Introduction and Summary	1
I. The Evolution of Cable Converters Demonstrates Their Suitability for Resolving Equipment Compatibility Issues	5
II. The Use of Conversion Devices External to Consumer Electronics Equipment is the Most Efficient and Effective Means of Ensuring Compatibility with Cable Systems	8
Conclusion	14

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REPLY COMMENTS OF CABLEVISION SYSTEMS CORPORATION

Introduction and Summary

Cablevision Systems Corporation ("Cablevision") hereby submits its reply comments in response to the Notice of Inquiry ("Notice")^{1/} in the above-captioned proceeding.

In Cablevision's experience, the perceived lack of "compatibility" between consumer electronics equipment and cable systems is in part attributable to the growing use of addressable technology to enhance consumer choice by unbundling service offerings. Cablevision has long advocated policies that would permit cable operators to offer program services on an a la carte

^{1/}In the Matter of Implementation of Section 17 of the Cable Television Consumer Protection and Competition Act of 1992, Compatibility Between Cable Systems and Consumer Electronics Equipment, ET Docket No. 93-7, 8 FCC Rcd. 725 (rel. Jan. 29, 1993).

basic 2/ and Congress has specifically encouraged the use of

addressable technology.^{5/} To do so, it was necessary for Cablevision to install addressable boxes and scramble all channels above channel 14.^{6/} In the face of opposition from subscribers who found that the advanced features of their television sets and VCRs were disabled as a result, the company is considering unscrambling the signals that had previously been unscrambled and scrambling only those signals added to the system after a certain date.

To preserve and enhance subscriber choice in an era of rapid technological change affecting multichannel video programming distribution and consumer electronics, the Commission should not, as some have suggested, seek to predetermine the path of technological innovation.^{7/} Contrary to the statutory goal of

^{5/}In addition to receiving a basic package of over-the-air stations, the News 12 24-hour news service, and community programming. subscribers were offered an option of choosing 6 of

fostering technological innovation,^{8/} such a policy would likely retard or frustrate ongoing efforts to develop new consumer electronics devices for use with cable systems. Already-announced ventures among the cable, consumer electronics, and computer software industries presage an explosion of new media services and corresponding hardware. Other application-specific consumer electronics equipment for cable subscribers is under development.

Given the increasing abundance of consumer electronics products, and the development of alternative multichannel video programming distribution technologies, it is simply too costly and inefficient to incorporate a potentially vast number of signal conversion mechanisms into individual consumer electronics equipment components. In such a dynamic environment, the most effective means of assuring both equipment compatibility and signal security is through the development of conversion devices external to television sets, VCRs, or other consumer electronics equipment.

^{7/}(...continued)
service technology, including by limiting the number of channels delivered to the home) ["CEG/EIA Comments"].

^{8/}See 47 U.S.C. § 157(a) ("It shall be the policy of the United States to encourage the provision of new technologies and services to the public."); see also *Buy-Through Order* at 5 ("We do not intend through our approach to freeze in place the manner of [cable] system operation or the way in which [cable] systems are designed or their channels configured.").

**I. The Evolution of Cable Converters Demonstrates Their
Suitability for Resolving Equipment Compatibility Issues**

To understand and properly address the problem of cable service/consumer electronics equipment compatibility, a broader historical and technological context is essential. The development of converter technology was initially driven by the expansion of cable television systems from twelve to twenty-six channels in the early 1970s. Since existing televisions sets were not capable of tuning more than twelve VHF channels.

In addition to enabling the reception and display of

extended cable service programming content technology

service or to handle the radiofrequency ("RF") loading of these channels. In addition, many interdiction systems are unable to operate across the entire cable spectrum or effectively at channels above 450 Mhz. Finally, older televisions still require a converter to the extent they do not have "cable-ready" tuners or remote control capabilities.^{11/}

The use of scrambling and converter technology generally avoids these technical problems, enabling the cable industry to create service packages responsive to subscriber desires without the mechanical limitations of traps and without producing interference to adjacent channels.^{12/} Moreover, because scrambling technology is electronically based, it has been relatively easy to create an electronic authorization and deauthorization system.

While scrambling and converter technology interferes


technology.^{13/} As discussed below,^{14/} it does not make sense to incorporate signal reception and converter equipment into television sets and VCRs. Instead, the most efficient and cost effective means of exploiting the evolving signal transmission and converter technology is to permit the continued development of stand-alone converter devices.

II. The Use of Conversion Devices External to Consumer Electronics Equipment is the Most Efficient and Effective Means of Ensuring Compatibility with Cable Systems

While consumer equipment manufacturers have attempted to incorporate additional reception equipment and interfaces into their television sets and VCRs, resolving compatibility problems through hardware solutions poses both expense and operational problems. Manufacturing a television set that includes a VCR, cable converter, satellite receiver, and other reception and conversion equipment entails increasing levels of complexity. Failure of any of the built-in components may necessitate either the loss of all other functions while the unit is repaired or the purchase of a new system. Moreover, upgrading individual

reception components would likely require the manufacture and purchase of an entirely new television set.

The rapid pace of technological innovation in the cable industry only compounds the problem by reducing the functional life cycle of the electronics equipment to the detriment of consumers. Equipment that incorporates today's conversion technology would become obsolete in only a few years. as



produce a signal in the analog NTSC video and audio format.^{16/} Given the array of transmission and converter technologies, it makes little sense to produce a television set or VCR that incorporates all the possible conversion technologies. Instead, all channel selection and authorization processes would be more efficiently and cost-effectively administered by technology-specific or general purpose converters, upstream from the television set or VCR.

The computer market provides a useful model for solving the cable service/consumer electronics compatibility problem. The computer display device, or monitor, operates independently from the rest of the system components and is available from a number of manufacturers. The computer platform itself is a frame that can also be purchased from multiple sources, and technology can be added as the consumer requires and as the technology evolves. Technology and functionality are primarily handled by computer boards, which are also produced by a number of companies. These technology providers are able to develop their products as they best decide, as long as they meet certain underlying requirements.

With cable television service, compatibility and consumer needs could be satisfied by the development of a general purpose

^{16/}Comments of the Cable-Consumer Electronics Compatibility Advisory Group, ET Docket No. 93-7, at 20 (filed Mar. 22, 1993). The conversion to high definition television ("HDTV") would not change the analysis. In that case, the common objective would be to produce a signal in the HDTV format ultimately approved by the Commission.

converter device, analogous to the computer board, that would accept modular plug-in components from the various technology providers. This type of device would allow technology providers to develop innovative new products, without sacrificing the installed base of existing consumer electronics components and without limiting subscriber choice. The box or platform could be manufactured by consumer electronics equipment, converter, and satellite receiver manufacturers, offering significant competitive opportunities.

The requirements would be relatively simple.^{17/} The Commission could promote inter-industry efforts to adopt uniform electronics component inputs and converter device outputs based on existing standards, such as baseband NTSC video and audio, SVHS, and standard RF channels.^{18/} A uniform "bus" layout

^{17/}While some cross-licensing of proprietary technology may be required, and standards developed for basic hardware configuration and wiring, these obstacles are hardly insurmountable.

^{18/}In response to the Commission's request for comment on how it may enhance the commercial availability of remote control units that are compatible with converter devices, Notice, 8 FCC Rcd. at 729, the comments establish that such units have been available for several years from a wide variety of sources at highly competitive prices. Comments of the Cable-Consumer Electronics Compatibility Advisory Group at 22-24. Cablevision has configured its addressable converters to work with these so-called "universal" remotes, and informs its customers in systems where it collects a separate charge for remotes of the third-party purchase option at least once every six months. To the extent that "universal" remote units may require additional refinement to improve consumer acceptance, the Commission should permit the marketplace to determine the proper technological and marketing solutions. Compare NATOA Comments at 10 (urging the Commission to adopt additional standards for remote control technology).

specifying standard voltages would likewise foster compatibility, and industry-standard pin configurations would give consumers the ability to plug any component into the converter. The adoption of these minimal standards would permit technology to evolve unencumbered by the need for wholesale replacement of electronics components by consumers.

The adoption of these basic standards would also facilitate the evolution of multiple-input and -output converter devices. Because these devices would simultaneously receive and descramble multiple signals, they would enable a subscriber to tape and watch multiple scrambled signals at the same time and to utilize picture-in-picture capabilities.^{19/} By eventually supporting both video and full digital outputs, enhanced converter devices would also allow for seamless migration to digital video technology.

As new video delivery systems develop, moreover, converter technology will further evolve to ensure consumer access to the full range of video programming options.^{20/} For instance, joint ventures between Time Warner and Silicon Graphics and among Intel, Microsoft, and General Instrument Corp. are each seeking to develop a set-top converter that would merge personal computing with cable-distributed, interactive television

^{19/}See Comments of The National Cable Television Association, Inc., ET Docket No. 93-7, at 30-31 (filed Mar. 22, 1993).

^{20/}See Comments of the Community Antenna Television Association, Inc., ET Docket 93-7, at 16 (filed Mar. 22, 1993).

services.^{21/} Additionally, Sega Enterprises, Time Warner, and Tele-Communications, Inc., have announced plans to develop a converter that would permit the cable-delivery of video games.^{22/} These and other new cable-specific consumer electronics applications will require conversion devices.^{23/}

Likewise, C-band and Ku-band direct broadcast satellite will soon join laser disks, VCRs, and local microwave delivery systems as means of delivering video programming. Each of these technologies will require an interface device to permit display on consumer televisions. Other converter devices may be necessary to permit digital-to-analog translation, facsimile and telephone display, computer software/television set interaction, and other applications unforeseen only a few years ago. Given the potential staggering proliferation of hardware, it makes little sense to incorporate conversion hardware into each individual consumer electronics component.

Moreover, an approach aimed at limiting the use of converter devices, however initially appealing, would significantly undermine the evolution of video programming distribution and the expansion of video distributors into other telecommunications

^{21/}See John Markoff, *Time Warner Seeking Deal on Gear for Interactive TV*, N.Y. TIMES, April 13, 1993, at D1.

^{22/}See John Markoff, *Sega Links With Cable Providers: Venture to Deliver Games into Homes*, N.Y. TIMES, April 15, 1993, at D1.

^{23/}See also *Time Warner Seeking Deal on Gear for Interactive TV*, *supra* note 21, at D5 (reporting efforts to develop a set-top compact disk player with special graphics features that would link cable service and television equipment).

services. Fiber optic technology, characterized by reliable, high quality service transmission and reception, has permitted the redesign of cable network infrastructures to provide two-way, interactive services. The availability of digital compression, moreover, will undoubtedly speed the convergence of many of the hardware specific applications that exist in both the residential and commercial marketplaces today. Just as converters allowed for the general availability of increased channel capacity to all subscribers, regardless of the type or model of television set, the ability of cable systems and other multichannel video programming distributors to offer two-way digital services, fundamentally expanding consumer choice, may well be a function of the converter device.

Conclusion

Converter technology has permitted signal add-on capabilities and

telecommunications services, external conversion devices are the most effective means of facilitating equipment compatibility without sacrificing consumer choice.

Respectfully submitted,

CABLEVISION SYSTEMS
CORPORATION

Handwritten signature: D. G. M. A.